IN THE UNITED STATES COURT OF FEDERAL CLAIMS

SCIENCE APPLICATIONS INTERNATIONAL CORP.,

Plaintiff,

v.

THE UNITED STATES OF AMERICA,

Defendant.

No. 17-825 C

Senior Judge Eric G. Bruggink

DEFENDANT UNITED STATES OF AMERICA'S MOTION TO DISMISS UNDER RULE 12(b)(6)

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I. QUESTION PRESENTED

Whether this civil action should be dismissed with prejudice for failure to state a claim upon which relief can be granted because the asserted patents claim ineligible subject matter under 35 U.S.C. § 101.

II. STATEMENT OF THE CASE

A. Procedural Posture

On June 19, 2017, Plaintiff Science Applications International Corp. ("SAIC") filed a Complaint alleging infringement of four (4) United States patents. Dkt. 1 ("SAIC's Complaint"). On August 14, 2017, Defendant The United States of America ("the government") filed an unopposed motion for an extension of time to answer or otherwise respond to SAIC's Complaint. Dkt. 6. On August 15, 2017, the Court issued an order granting the government's motion and enlarging the time within which to file an answer or response to and including October 17, 2017. Dkt. 7. This motion is timely.

B. Applicable Law

"Patent eligibility under § 101 is an issue of law." *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1304, 1312 (Fed. Cir. 2016) (citation omitted(s)). "The Supreme Court has [] consistently held that § 101 provides a basis for a patentability/validity determination that is independent of—and on an equal footing with—any other statutory patentability provision." *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1347 (Fed. Cir. 2016) (citation(s) omitted). "Courts may therefore dispose of patent-infringement claims under § 101 whenever procedurally appropriate." *Id.* Rule 12(b)(6) of the Rules of the United States Court of Federal Claims ("RCFC") provides, in part, that a party may assert by motion the defense of "failure of state a claim upon which relief can be granted." RCFC 12(b)(6). It is appropriate to hold a patent is directed to ineligible subject matter under

§ 101 and to dismiss the patentee's complaint under Rule 12(b)(6). *See, e.g., In re TLI Communications LLC Patent Litig.*, 823 F.3d 607, 615 (Fed. Cir. 2016) (affirming district court's judgment and dismissal of complaint under Rule 12(b)(6) where patent-in-suit failed to claim patent-eligible subject matter under § 101); *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089 (Fed. Cir. 2016) (same); *Affinity Labs of Texas, LLC v. DIRECT TV, LLC*, 838 F.3d 1253 (Fed. Cir. 2016) (same).

"Section 101 of the Patent Act defines the subject matter eligible for patent protection." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S.Ct. 2347, 2354 (2014). Section 101 provides:

> Whoever invents or discover any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

35 U.S.C. § 101. The U.S. Supreme Court has "long held that [Section 101] contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable." *Id.* (citing *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S.Ct. 2107, 2116 (2013)). "[T]he concern that drives this exclusionary principle [is] one of pre-emption." *Alice*, 134 S.Ct. at 2354. "Laws of nature, natural phenomena, and abstract ideas are 'the basic tools of scientific and technological work.'" *Id.* (citing *Myriad*, 133 S.Ct. at 2116 (some internal quotation(s) omitted)). "'Monopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it,' thereby thwarting the primary object of the patent laws." *Alice*, 134 S.Ct. at 2354 (quoting *Mayo Collaborative Services v. Prometheus Labs., Inc.*, 132 S.Ct. 1289, 1293 (2012); U.S. Const., Art. 1, § 8, cl. 8).

"[I]n applying the § 101 exception, we must distinguish between patents that claim the 'buildin[g] block[s]' of human ingenuity and those that integrate the building blocks into

something more, . . . thereby 'transform[ing]' them into a patent-eligible invention." *Alice*, 134 S.Ct. at 2354 (quoting *Mayo*, 132 S.Ct. at 1293, 1303). "The former 'would risk disproportionately tying up the use of the underlying' ideas, . . . and are therefore ineligible for patent protection." *Alice*, 134 S.Ct. at 2354-55 (quoting *Mayo*, 132 S.Ct. at 1294).

In *Mayo*, the U.S. Supreme Court "set forth a framework for distinguishing patents that claims laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." *Alice*, 134 S.Ct. at 2355. "*First*, we determine whether *the claims* at issue are directed to one of those patent-ineligible concepts." *Id.* (citing *Mayo*, 132 S.Ct. at 1296-97) (emphasis added); *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016) ("The § 101 inquiry must focus on the language of the Asserted Claims themselves."). *Second*, "[i]f so, we then ask, '[w]hat else is there *in the claims* before us?'" *Id.* (quoting *Mayo*, 132 S.Ct. at 1297) (emphasis added). "To answer that question, we consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." *Id.* at 2355 (quoting *Mayo*, 132 S.Ct. at 1297-98). The second step of this analysis is often described "as a search for an 'inventive concept'—*i.e.*, an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to *significantly* more than a patent upon the [ineligible concept] itself.'" *Id.* at 2355 (quoting *Mayo*, 132 S.Ct. at 1294) (insertion in original) (emphasis added).

"The 'abstract idea' step of the inquiry calls upon us to look at the 'focus of the claimed advance over the prior art' to determine if the claim's 'character as a whole' is directed to excluded subject matter." *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016). "[N]ot every claim that recites concrete, tangible components escapes the reach

of the abstract-idea inquiry." *In re TLI Communications LLC Patent Litig.*, 823 F.3d 607, 611 (Fed. Cir. 2016) (citing *Alice*, 134 S.Ct. at 2360; *Mortg. Grader, Inc. v. First Choice Loan Serv. Inc.*, 811 F.3d 1314, 1324-25 (Fed. Cir. 2016) (claims reciting an "interface," "network," and a "database" are nevertheless directed to an abstract idea)). Indeed, "a relevant inquiry at step one is 'to ask whether the claims are directed to *an improvement to computer functionality* versus being directed to an abstract idea.'" *In re TLI Communications*, 823 F.3d at 612 (quoting *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016)) (emphasis added). Specifically, courts "contrast[] claims 'directed to an improvement in the functioning of a computer' with claims 'simply adding conventional computer components to well-known business practices,' or claims reciting 'use of an abstract mathematical formula on any general purpose computer,' or 'a purely conventional computer implementation of a mathematical formula,' or 'generalized steps to be performed on a computer using conventional computer activity.'" *In re TLI Communications*, 823 F.3d at 612 (quoting *Enfish*, 822 F.3d at 1338).

Even where "the claims limit the abstract idea to a particular environment[,] . . . that does not make the claims any less abstract for the step 1 analysis." *In re TLI Communications*, 823 F.3d at 613 (citing *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362-63 (Fed. Cir. 2015)). More is required of claims to avoid running afoul of the abstract idea exception to patentability than just applying the abstract idea to a particular field. For example, in *Enfish*, the Federal Circuit reasoned that patent-eligible claims were "directed to an improvement in the functioning of a computer[,]" "the way computers operate," or "chip architecture, an LED display, and the like." 822 F.3d at 1335-36, 1338-39 ("the claims are directed to a *specific implementation* of a solution to a problem in the software arts.") (emphasis added). Additionally, the Federal Circuit "continue[s] to 'treat[] analyzing information by steps people

go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.'" *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146 ("mental processes are a 'subcategory of unpatentable abstract ideas.'") (Fed. Cir. 2016) (quoting *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371 (Fed. Cir. 2011)). "[C]omplex details from the specification cannot save a claim directed to an abstract idea that recites generic computer parts[.]" *Synopsys*, 839 F.3d at 1149 (citing *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013)).

"The 'inventive concept' step requires the Court to look with more specificity at what the claim elements add, in order to determine 'whether they identify an 'inventive concept' in the application of the ineligible subject matter' to which the claim is directed." *Affinity Labs*, 838 F.3d at 1258 (citing *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016)). "[G]eneric computer components [are] insufficient to add an inventive concept to an otherwise abstract idea." *In re TLI Communications*, 823 F.3d at 614 (citing *Alice*, 134 S.Ct. at 2360 ("Nearly every computer will include a 'communications controller' and a 'data storage unit' capable of performing the basic calculation, storage, and transmission functions required by the method claims."); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1347-49 (Fed. Cir. 2014) (storing information into memory, and using a computer to translate the shapes on a physical page into typeface characters, insufficient to confer patent eligibility); *BuySAFE v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) ("That a computer receives and sends the information over a network—with no further specification—is not even arguably inventive."). "[V]ague, functional descriptions of [] components are insufficient to transform the abstract idea into a patent-eligible invention." *In re TLI*

Communications, 823 F.3d at 615; *see also Affinity Labs*, 838 F.3d at 1258 (the "patent claims the function . . ., not a particular way of performing that function"; "[t]here is nothing in claim 1 that is directed to *how* to implement [the function, but] . . . [r]ather, the claim is drawn to the idea itself.") (emphasis in original). Although the Federal Circuit held as patent-eligible a "claimed solution [] necessarily in computer technology in order to overcome a problem specifically arising in the realm of computer networks[,]" it "caution[ed], however, that not all claims purporting to address Internet-centric challenges are eligible for patent." *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257-58 (Fed. Cir. 2014) ("the claims at issue here *specify how* interactions with the Internet are manipulated to yield a desired result . . . .") (emphasis added).

"While the Supreme court has held that the machine-or-transformation test is not the sole test governing § 101 analyses, . . . that test can provide a 'useful clue' in the second step of the Alice framework." *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (Fed. Cir. 2014) (citing *Bilski v. Kappos*, 561 U.S. 593, 604 (2010); *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can.*, 687 F.3d 1266, 1278 (Fed. Cir. 2012)). "A claimed process can be patent-eligible under § 101 if: '(1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.'" *Ultramercial*, 772 F.3d at 716 (citing *In re Bilski*, 545 F.3d 943, 954 (Fed. Cir. 2008) (en banc), aff'd on other grounds, *Bilski*, 561 U.S. 593). However, "the Internet is not sufficient to save [a] patent under the machine prong of the machine-or-transformation test." *Ultramercial*, 772 F.3d at 715 (citing *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1370 (Fed. Cir. 2011)). "It is a ubiquitous information-transmitting medium, not a novel machine[,]" and therefore "adding a computer to otherwise conventional steps does not make an invention patent-eligible." *Ultramercial*, 772 F.3d at 717 (citing *Alice*, 134 S.Ct. at 2357). "Any transformation from the use of computers or the *transfer*

of content between computers is merely what computers do and does *not* change the analysis." *Ultramercial*, 772 F.3d at 717 (emphasis added); *Versata Dev. Grp., Inc. v. SAP America, Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015) (quoting *SiRF Tech., Inc. v. Int'l Trade Comm'n*, 601 F.3d 1319, 1333 (Fed. Cir. 2010) ("In order for the addition of a machine to impose a meaningful limit on the scope of a claim, it must play a significant part in permitting the claimed method to be performed, rather than function solely as an obvious mechanism for permitting a solution to be achieved more quickly, i.e., through the utilization of a computer for performing calculations.").

C. SAIC's Asserted Patents

SAIC's Complaint alleges infringement of four (4) U.S. patents[1]. Based on their inter-relation, the asserted patents create two patent families. A first patent family consists of asserted U.S. patents 7,787,012 and 8,817,103[2]. Dkt. 1-1, Ex. A ('012 patent) and Ex. B ('103 patent). A second patent family consists of asserted U.S. patents 9,229,230 and 9,618,752[3]. Dkt. 1-1, Ex. C ('230 patent) and Ex. D ('752 patent). Each patent family is described below in turn.

1. First Patent Family ('012 and '103 Patents)

The '012 patent is entitled "System and Method for Video Image Registration in a Heads Up Display." Dkt. 1-1 at 2. The '012 patent issued on August 31, 2010 from an application filed on December 2, 2004 that does not claim priority to any earlier-filed application. *Id.* On its face,

[1] SAIC's Complaint generally alleges infringement of "one or more claims of each of the [asserted] patents[,]" but only purports to describe its allegation for "claim 1 of the '012 patent, claim 1 of the '103 patent, claim 15 of the '230 patent, and claim 7 of the '752 patent . . . ." Dkt. 1 at 15-34.

[2] The '103 patent issued from a child application (no. 12/843,842) that is a division of a parent application (no. 11/000,934) which issued as the '012 patent. Dkt. 1-1 at 21.

[3] The '752 patent issued from a child application (no. 14/950,643) that is a continuation of a parent application (no. 11/680,207) which issued as the '230 patent. Dkt. 1-1 at 94.

the ’012 patent identifies two inventors, John Richard Scales and Mark David Hose, and an assignee, Science Applications International Corporation of San Diego, California. *Id.* The ’012 patent issued with nineteen total claims; method claim 1, reproduced below, and method claim 17 are the only independent claims. Dkt. 1-1 at 18-19. Indeed, the ’012 patent contains method claims only. *Id.*

Like the ’012 patent, the ’103 patent is also entitled “System and Method for Video Image Registration in a Heads Up Display.” Dkt. 1-1 at 21. The ’103 patent issued on August 26, 2014 from a divisional application filed on July 26, 2010 that claims priority to the application filed on December 2, 2004 which issued as the ’012 patent. *Id.* The ’103 patent shares the same specification with the ’012 patent. *Id.* On its face, the ’103 patent identifies the same inventors and assignee as the ’012 patent. *Id.* The ’103 patent issued with twelve total claims; system claim 1, reproduced below, is the only independent claim. Dkt. 1-1 at 37. As shown below by color-coding, SAIC’s asserted claim 1 of the ’012 patent and asserted claim 1 of the ’103 patent recite nearly identical elements, though the former is a method and the latter is a system.

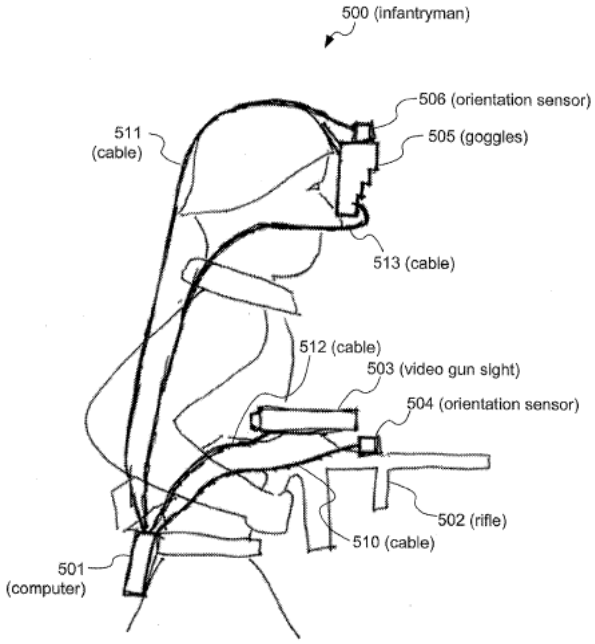
’012 patent, Method Claim 1	**’103 patent, System Claim 1**
1. A method of registering video images with an underlying visual field comprising the steps of: (1) determining a source orientation of a video source providing a video feed containing data for a series of video images representing portions of a visual field; (2) determining a display orientation of a transparent display overlaying the visual field, wherein the video source and the transparent display are independently movable about multiple axes; and	1. A system comprising: a video camera adapted to provide, in a video feed, data for a series of video images representing portions of a visual field; a first orientation sensor adapted to detect an orientation of the video camera; a heads up display (HUD) adapted for viewing of the visual field by a user of the system wherein the HUD comprises a transparent display, and wherein the HUD and

(3) displaying the video images in positions on the transparent display that overlay portions of the visual field represented by the displayed video images, wherein boundaries of the displayed video images are in registration with boundaries of portions of the visual field represented by the displayed video images.	the video camera are independently movable about multiple axes; a second orientation sensor adapted to detect an orientation of the HUD; and a computer adapted to receive sensor data from the first and second orientation sensors, to receive the video feed from the video camera, and to display the video images, on the transparant [sic] display and based on the received sensor data, in positions that overlay portions of the visual field represented by the displayed video images wherein boundaries of the displayed video images are in registration with boundaries of portions of the visual field represented by the displayed video images, and wherein the computer is adapted to determine a source orientation of the video camera, and determine a display orientation of the transparent display.

The ’012 and ’103 patents summarize their purported invention as “a method for aligning video images with an underlying visual field” by performing various steps. Dkt. 1-1 at 14 (’012 patent at 2:31-37)[4]. Those steps are “determining a source orientation of a video source, determining a display orientation of a transparent display overlaying the visual field, and displaying video images in the transparent display,” where the position of the video “images is based on the source orientation and the display orientation.” *Id.* In other words, “[a] video camera is coupled with a heads up display, and a computer positions images from the video camera on the heads up display based on the relative orientations of the camera and the display.” Dkt. 1-1 at 2 (’012 patent, Abstract). “The video image, which may, for example, come from a

[4] Because the ’012 and ’103 patents share the same specification, we cite to only the ’012 patent, but the same language appears in both specifications.

weapon sight, is aligned within the heads up display . . . ." *Id.* Figure 5, reproduced below, which appears on the front of the '012 and '103 patents, illustrates the described configuration. Dkt. 1-1 at 6.



The '012 and '103 patents *admit* that prior art methods and systems, including prior art night vision goggles (such as "Sensor Technology Systems' Model 2733 Low Profile Night Vision Goggle), already "have the ability to port a video feed into a beam combiner, overlaying a video image from a video source mounted in the weapon sight onto the center of the visual field of the goggle." Dkt. 1-1 at 14 ('012 patent at 1:65 – 2:3). Figure 1, reproduced below, illustrates the admitted prior art.

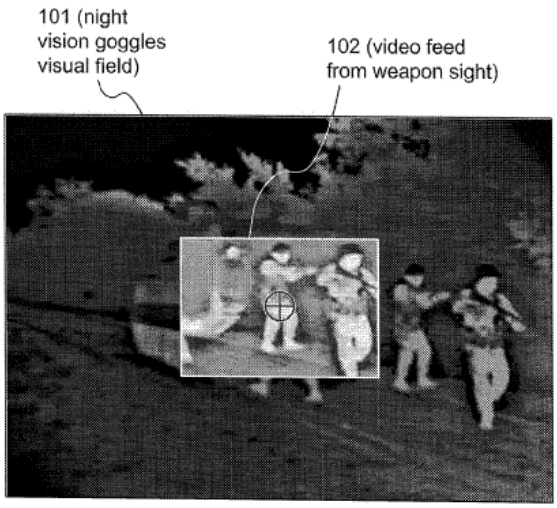


FIG. 1
(PRIOR ART)

Dkt. 1-1 at 4. The ’012 and ’103 patents describe the problem with the prior art solution as “the video feed 102 remains stationary in the center of the visual field 101, obscuring content in the center of the visual field . . . .” Dkt. 1-1 at 14 (’012 patent at 2:10-13). The ’012 and ’103 patents’ *only* purported “improvement” to this admitted prior art is the “superimposition of video images” based on the relative orientations of the weapon sight’s video source and night vision goggles, rather than “directly into the center of the night vision goggle’s visual field.” Dkt. 1-1 at 13-15 (’012 patent at 4:7-9, Abstract, 2:4-7). Figure 4, reproduced below, illustrates the purported “improvement” – *i.e.*, “[t]he visual field 400 of FIG. 4 illustrates the image produced by an illustrative embodiment of the invention.” Dkt. 1-1 at 15 (’012 patent at 3:56-57).

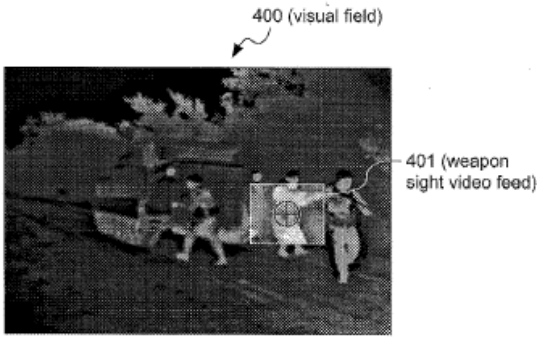


FIG. 4

Dkt. 1-1 at 5. In Figure 4, the visual field 400 is "the view through a soldier's night vision goggles or other (clear) goggles[that] is enhanced with the addition of a portion of the weapon sight video feed 401 through the use of a heads up display (HUD)." Dkt. 1-1 at 15 ('012 patent, 3:57-61). "[T]he video feed 401 has been positioned over the portion of the visual field 400 based on the direction the video source is pointed." *Id.* ('012 patent, 3:64-66). "As the weapon moves, the video feed 401 is dynamically positioned within the visual field 400." *Id.* ('012 patent, 3:67 – 4:1).

The '012 and '103 patents provide a single high-level flowchart, in Figure 8, in support of their only purported advancement over the admitted prior art. Dkt. 1-1 at 9. Figure 8, reproduced below, "demonstrates an illustrative embodiment of a method for registering a video image with an underlying visual field." Dkt. 1-1 at 16 ('012 patent, 6:25-27).

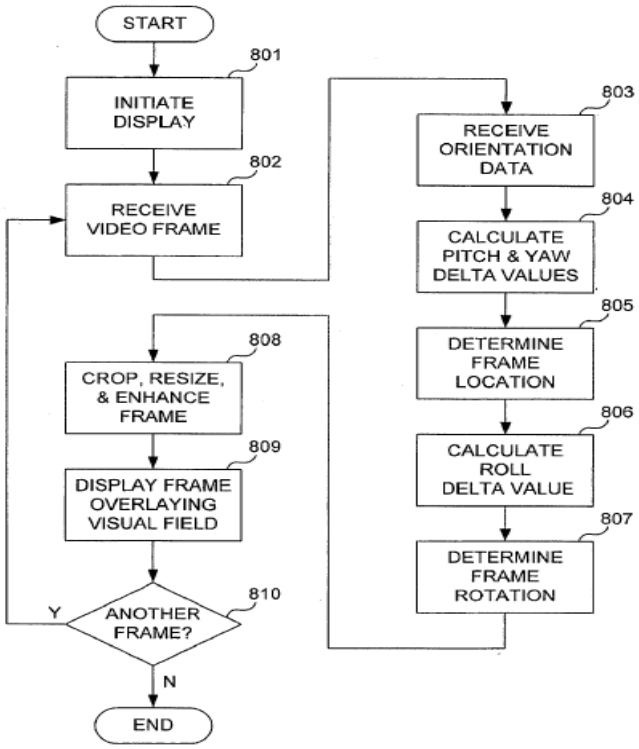


FIG. 8

The method illustrated in Figure 8 contains ten steps (reference numbers 801 – 810) and is described at a high level of generality, as shown. *Id.* No software code or specific algorithm is provided to add specificity to these broad steps. Indeed, the breadth of the method is confirmed by the inventors' general declaration, for step 807 ("determine a frame"), that "[v]arious algorithms for rotating an image by a certain number of degrees are well known in the art." Dkt. 1-1 at 16 ('012 patent at 62-63). However, no such algorithm is described or incorporated by reference in the patents.

Moreover, the inventors of the '012 and '103 patents expressly describe the wide breadth of their purported invention. Dkt. 1-1 at 15. Indeed, the inventors declare that "this superimposition of video images is *not* limited to weapon usage on a battlefield." Dkt. 1-1 at 15 ('012 patent at 4:7-9) (emphasis added). "Other embodiments of the current invention could be used in *a myriad of settings*, including law enforcement, medicine, etc." *Id.* ('012 patent at 4:9-11) (emphasis added). "For example, *a surgeon* could use such a device on his hand to provide a magnified view of an operating field embedded within a view of the entire patient's chest cavity." *Id.* ('012 patent at 4:12-14) (emphasis added)[5].

2. Second Patent Family ('230 and '752 Patents)

The '230 patent is entitled System and Method for Video Image Registration and/or Providing Supplemental Data in a Heads Up Display. Dkt. 1-1 at 39. The '230 patent issued on January 5, 2016 from an application filed on February 28, 2007 that does not claim priority to any earlier-filed application. *Id.* On its face, the '230 patent identifies two inventors, John Richard Scales and Michael Harris Rodgers, and an assignee, Science Applications International

[5] The inventors list numerous additional examples demonstrating the breadth of their purported invention, such as use by an astronomer on her telescope, a nephrologist, and an ichthyologist. Dkt. 1-1 at 15 ('012 patent at 14-30).

Corporation of McLean, VA. *Id.* The '230 patent issued with forty-two total claims; claims 1, 15, and 29 are the only independent claims. Dkt. 1-1 at 18-19. Claims 1 and 15 are reproduced below[6].

Like the '230 patent, the '752 patent is also entitled System and Method for Video Image Registration and/or Providing Supplemental Data in a Heads Up Display. Dkt. 1-1 at 94. The '752 patent issued on April 11, 2017 from a continuation application filed on November 24, 2015 that claims priority to the application filed on February 28, 2007 which issued as the '230 patent. *Id.* The '752 patent shares the same specification with the '230 patent. *Id.* On its face, the '752 patent identifies the same inventors and assignee as the '230 patent. *Id.* The '752 patent issued with eighteen total claims; system claim 1, method claim 7, reproduced below, and non-transitory machine-readable medium claim 13[7] are the only independent claims. Dkt. 1-1 at 37. As shown below by color-coding, SAIC's asserted claim 15 of the '230 patent and asserted claim 7 of the '752 patent recite nearly identical steps.

'230 patent, Method Claim 15	**'752 patent, Method Claim 7**
15. A method, comprising: (a) receiving video images from a first video source and from a second video source representing portions of an external environment; (b) receiving motion data indicative of motion of the first and second video sources;	7. A method comprising: receiving first video data of images representing portions of an external environment within a field of view of a first video source; receiving second video data of images representing portions of the external environment within a field of view of a second video source;

[6] Claim 29 of the '230 patent repeats the steps of method claim 15 but, unlike method 15, claim 29 is directed to: "A non-transitory machine-readable medium having machine-executable instructions for performing a method, comprising: . . . ."

[7] Claim 13 of the '752 patent repeats the steps of method claim 7 but, unlike method claim 7, claim 13 is directed to: "A non-transitory machine-readable medium having machine executable instructions for performing a method comprising: . . . ."

(c) identifying, based on the received motion data, a part of a first video source image that potentially represents a portion of the external environment represented in a part of a second video source image;	receiving first motion data corresponding to the first video source and second motion data corresponding to the second video source;
(d) evaluating, based on a comparison of data from the first and second video source images, the identification performed in step (c); and	identifying, based on the received first motion data and the received second motion data, a region of a first image generable from the first video data for comparison with a region of a second image generable from the second video data;
(e) displaying at least a portion of the first video source image and at least a portion of the second video source image such that the second video source image portion overlays a corresponding region of the first video source image portion, wherein the corresponding region represents a portion of the external environment represented in the second video source portion.	comparing data corresponding to the identified region of the first image and data corresponding to the region of the second image; selecting, based on the comparing, a part of the first image and a part of the second image that represent a same portion of the external environment; and displaying at least a portion of the first image and the selected part of the second image such that the selected part of the second image replaces the selected part of the first image and is in registration with regions of the first image surrounding the selected part of the first image.

The ’230 and ’752 patents summarize their purported invention as “a computer receives images from two video sources[, where] [e]ach of those two video sources is movable independent of the other and generates images that represent a portion of an external environment within its field of view.” Dkt. 1-1 at 78 (’230 patent at 1:58-62)[8]. “Sensors coupled to the two video sources provide data to the computer that indicates the spatial orientations of those sources.” *Id.* (’230 patent at 1:64-66). “Using the sensor data, the computer determines a location for placing a video image (or a portion thereof) from a second of

[8] Because the ’230 and ’752 patents share the same specification, citations are limited to the ’230 patent.

the sources (e.g., a rifle-mounted source) in the video image from a first of the sources (e.g., a goggles-mounted source)." *Id.* ('230 patent at 1:66 – 2:3). After a location is determined from the sensor data, "the two images are displayed such that the second source image (or a portion of that image) overlays a corresponding portion of the first source image." *Id.* ('230 patent at 2:11-14). Figures 1 and 4, reproduced below, illustrate the described configuration. Dkt. 1-1 at 41 (Figure 1), 44 (Figure 4).

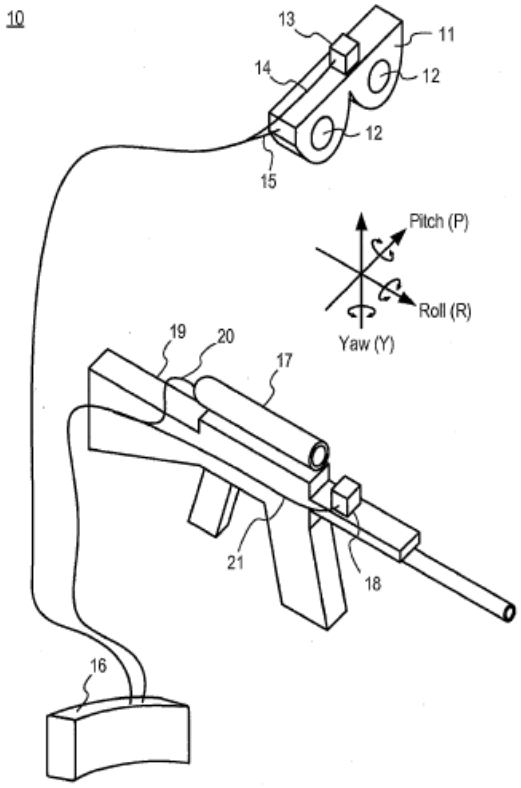


FIG. 1

Figure 1 illustrates a system that provides an information-enhanced heads-up display (HUD) for an infantryman or other armed tactical operator. Dkt. 1-1 at 79 ('230 patent at 3:24-27). The system 10 includes a set of goggles 11, which include eyepieces 12 and other apertures (not shown) for receiving light or other (e.g., IR) input from the user's field of view. *Id.* ('230

patent at 3:28-35). A sensor 13 is attached to the goggles 11 and includes an inertial measurement unit (IMU) 11 and magnetometer. *Id.* ('230 patent at 3:43-46). The image projector and generator in the goggles 11 and sensor 13 communicate (over cables 15 and 14 or wireless means) with a wearable control unit 16. *Id.* ('230 patent at 3:50-53). The control unit 16 includes a computer, radio receiver, and other elements. *Id.* ('230 patent at 3:54-55). The "[s]ystem 10 [also] includes a video source (or 'scope') 17 and a sensor 18 configured to move as a single unit with [the] scope 17." *Id.* ('230 patent at 3:56-58). As shown, the "scope 17 is affixed to a rifle 19" and the "sensor 18 and scope 17 communicate with [the] control unit 16 via [] cables 20 and 21." *Id.* ('230 patent at 3:58 – 4:3).

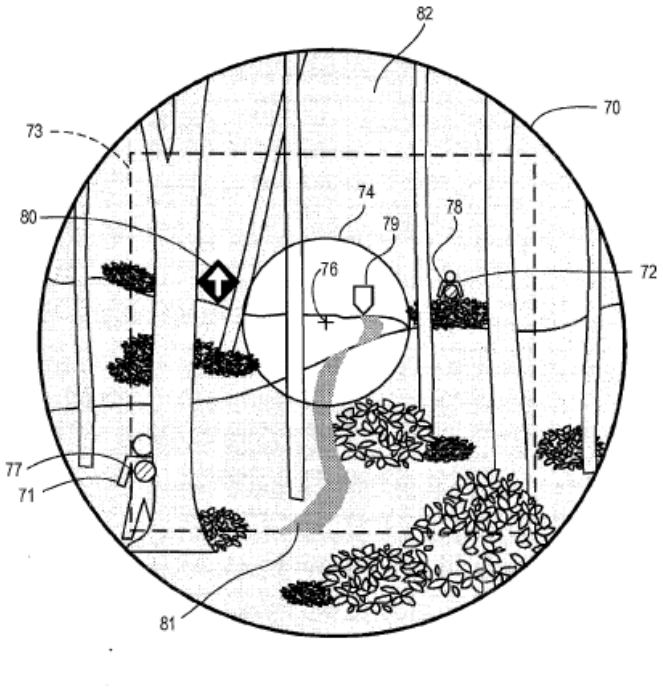


FIG. 4

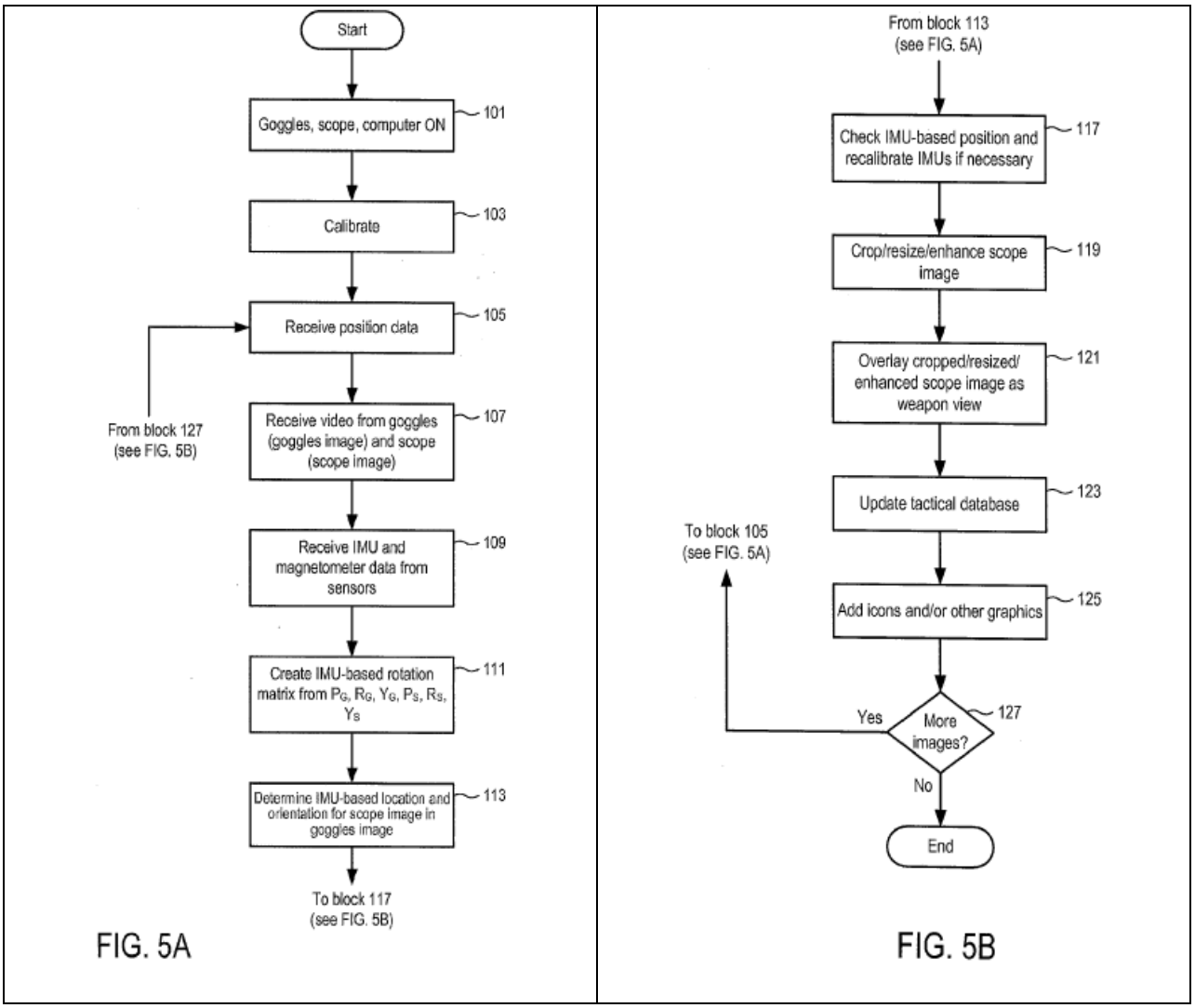
Figure 4 shows an example of a user display 70 provided by the goggles 11. "Located within the goggles['] [field of view] (and thus in [the] goggles image 82) are numerous trees and bushes . . . as well as soldiers 71 (partially behind a tree in the lower left) and 72 (partially

covered by foliage in the upper right)." Dkt. 1-1 at 80 ('230 patent at 6:62-67). "The [heads up display] portion of [the] user display 70 is shown as a rectangular region 73 in the center portion of the goggles[']s [field of view]." Dkt. 1-1 at 81 ('230 patent at 7:3-5). "[O]verlaid on [the heads up display] 78 is a weapon view 74 corresponding to (and generated from) the scope image." Dkt. 1-1 at 81 ('230 patent at 7:6-8). "[T]he location and rotation of [the] weapon view 74 within [the] user display 70 is determined by [the] computer 30 based on output from [the] sensors 13 and 18 and based on [a] comparison of the scope image with the goggles image." Dkt. 1-1 at 81 ('230 patent at 7:19-22). "As [the] rifle 19 is moved, scope images (or portions thereof) are dynamically positioned within [the] user display 70 so as to indicate where [the] scope 17 (and thus [the] rifle 19) is pointing." Dkt. 1-1 at 81 ('230 patent at 7:22-25).

The '230 and '752 patents *admit* that prior art methods and systems include the '012 patent. Dkt. 1-1 at 78 ('230 patent at 1:17-34). The '230 and '752 patents state that the prior art solution of the '012 patent "can pose challenges" with "[d]etermining the relative orientations of two video sources based on inertial measurement unit (IMU) sensor data." *Id.* ('230 patent at 1:35-38). "For example, many low-cost IMU sensors experience bias drift over time" that "can result in relative orientation errors of several degrees per hour." *Id.* ('230 patent at 1:38-41). These errors require the user to periodically recalibrate the IMU sensors, and thus "can disrupt system operation." *Id.* ('230 patent at 1:42-44). The purported invention of the '230 and '752 patents apparently minimizes the need for such manually-initiated recalibration. *Id.* ('230 patent at 1:44-45, 2:14-16).

The '230 and '752 patents provide a high-level flowchart, in Figures 5A-5B, in support of their only purported advancement over the admitted prior art. Dkt. 1-1 at 45-46. Figures 5A-5B, reproduced below, "are a flow chart explaining the operation of [the] system 10." Dkt. 1-1 at 81

('230 patent at 7:46-47). As shown, there are steps reserved for calibration; initial calibration occurs at step 103 and recalibration, if necessary, occurs at step 117 "thereby correcting for bias drift and helping to maintain proper registration of the scope image within the goggles image." Dkt. 1-1 at 81 ('230 patent at 7:61-64, 10:4-15).



Moreover, the inventors of the '230 and '752 patents tout the wide breadth of their purported invention. Dkt. 1-1 at 89. Indeed, the inventors declare that "a heads up display need not be associated with a pair of goggles . . . [or] could appear before a windshield in a vehicle[,] . . . [and] an orientation sensor may be placed to sense the orientation of [a] vehicle rather than a

pair of goggles[.]" *Id.* ('230 patent at 23:58-64) (emphasis added). "[T]he techniques described [] are not limited to weapon targeting or other combat uses [and] . . . could be used in a myriad of settings, including law enforcement, medicine, astronomy, etc." *Id.* ('230 patent at 24:1-4).

III. ARGUMENT

The asserted patents' claims are directed to a patent-ineligible abstract idea and lack any inventive concept. Specifically, the claims pre-empt the idea of superimposing a video image in a location on a display. The monopolization of this idea through a patent grant is contrary to the primary object of the patent laws. *See Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S.Ct. 2347, 2354 (2014) (quoting *Mayo Collaborative Services v. Prometheus Labs., Inc.*, 132 S.Ct. 1289, 1293 (2012); U.S. Const., Art. 1, § 8, cl. 8). At their best, the claims simply recite conventional elements or generalized steps to be performed using conventional elements. The claims lack the necessary specificity to avoid the pre-emption concerns that underlie the abstract idea exception to patentability. *See Alice*, 134 S.Ct. at 2354. Indeed, the wide breadth of the claims is confirmed by the inventors' own admissions that their purported invention could be used in a myriad of settings, including by a surgeon in the field of medicine. *See, e.g.*, Dkt. 1-1 at 15 ('012 patent at 4:9-11); Dkt. 1-1 at 89 ('230 patent at 24:1-4).

Furthermore, the claims are directed to a function, not *how* to implement the function. *See In re TLI Communications LLC Patent Litig.*, 823 F.3d 607, 614 (Fed. Cir. 2016); *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1258 (Fed. Cir. 2016). Because "[t]he § 101 inquiry must focus on the language of the [a]sserted [c]laims themselves," any purported "complex details from the specification cannot save [] claim[s] directed to an abstract idea that recites generic computer parts." *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016). According, the asserted patents' claims are invalid under 35 U.S.C. § 101.

A. The First Patent Family Claims the Abstract Idea of Superimposing a Video Image Based on a Relative Orientation

The claims of the ’012 patent and ’103 patent (“first patent family”) are drawn to the idea of superimposing a video image based on a relative orientation. This idea, however, is not patent-eligible because it is abstract. *See Alice*, 134 S.Ct. at 2355 (2014) (“The ‘abstract ideas’ category embodies the ‘longstanding rule that ‘[a]n idea of itself is not patentable.’’”) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). SAIC’s Complaint purports to describe an infringement allegation for claim 1 of the ’012 patent and claim 1 of the ’103 patent[9]. Dkt. 1 at 15-25. Those claims are addressed in turn.

Claim 1 of the ’012 patent is directed to “[a] method of registering video images with an underlying visual field . . .” Dkt. 1-1 at 18. This method is comprised of three claimed steps, as follows. *Id.*

- Step One: “determining a source orientation of a video source providing a video feed containing data for a series of video images representing portions of a visual field.” *Id.*

[9] Claim 1 is the only independent claim of the ’103 patent. Claims 1 and 17 are the only independent claims of the ’012 patent. For purposes of a patent-ineligibility analysis, claim 1 of the ’012 patent is representative of claim 17 of that patent. To the extent SAIC argues that claim 1 of the ’012 patent is not representative of independent claim 17, SAIC’s Complaint must be dismissed under Rule 12(b)(6) for failure to meet the basic pleading standards of RCFC 8(a)(2) in view of the Supreme Court’s *Twombly/Iqbal* jurisprudence. SAIC’s Complaint does not purport to describe an infringement allegation for claim 17 of the ’012 patent. *See Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009) (“As the Court held in *Twombly*, . . . the pleading standard Rule 8 announces does not require ‘detailed factual allegations,’ but it demands more than an unadorned, the-defendant-unlawfully-harmed-me accusation. . . . A pleading that offers ‘labels and conclusions’ or ‘a formulaic recitation of the elements of a cause of action will not do.’”) (quoting *Bell Atlantic Corp. v. Twombly*, 550 U.S. 544 (2007)); *see also supra* n.1.

According to the specification, the video source may be from a weapon sight video feed. Dkt. 1-1 at 5-6 ('012 patent at Figs. 4-5; Abstract ("The video image, which may, for example, come from a weapon sight . . . ")); *see supra* Sec. II.C.1.

- Step Two: "determining a display orientation of a transparent display overlaying the visual field, wherein the video source and the transparent display are independently movable about multiple axes." Dkt. 1-1 at 18.

According to the specification, the display orientation may be from the goggles (heads up display) of an infantryman. Dkt. 1-1 at 6 ('012 patent at Fig. 5, 6:38-40 ("orientation data may be received from sensors attached to a heads up display . . . .")); *see supra* Sec. II.C.1.

- Step Three: "displaying the video images in positions on the transparent display that overlay portions of the visual field represented by the displayed video images, wherein boundaries of the displayed video images are in registration with boundaries of portions of the visual field represented by the displayed video images." Dkt. 1-1 at 18.

According to the specification, "images [of the weapon sight video feed are positioned] on the heads up display based on the relative orientations of the [video] camera [mounted on the weapon] and the display." Dkt. 1-1 at 2 ('012 patent, Abstract; 3:64-66 ("the video feed 401 has been positioned over the portion of the visual field 400 based on the direction the video source is pointed.")). Step three is the only purported improvement that the inventors claim over the admitted prior art. Dkt. 1-1 at 13-15 ('012 patent at 4:7-9, Abstract, 2:4-7); *see supra* Sec. II.C.1.

Notably absent from claim 1 of the '012 patent is any meaningful structural element, specific algorithm, or tie to any specific machine/computer; the lack of these characteristics

renders the claim manifestly abstract. *See Alice*, 134 S.Ct. at 2360 ("the claims at issue amount to 'nothing significantly more' than an instruction to apply the abstract idea of intermediated settlement using some unspecified, generic computer. . . . Under our precedents, that is not '*enough*' to transform an abstract idea into a patent-eligible invention.") (quoting *Mayo*, 132 S.Ct. at 1298) (emphasis in original). In essence, claim 1 amounts to a patent monopoly on the age-old practice of looking at a target, through a weapon sight or telescope, with one eye to perceive a source image in one's mind, while looking with the other eye simultaneously outside of the weapon sight or telescope, then forming a composite image in one's mind. This practice has been performed for ages in the human mind by, for example, hunters and astronomers, and is free for all and reserved exclusively to none. *See, e.g.*, *Bilski v. Kappos*, 561 U.S. 593, 602 (2010); *Synopsys*, 839 F.3d at 1146-47 ("we continue to 'treat[ ] analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.'") (citing *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016)).

As it stands, claim 1 is so abstract that it pre-empts anyone in any field from practicing the idea of superimposing video images based on a relative orientation. Dkt. 1-1 at 15 (inventors declaring their "superimposition of video images is *not* limited to weapon usage on a battlefield . . . . [T]he current *invention* could be used in a *myriad of settings*, including law enforcement, medicine, etc. For example, *a surgeon* could use such a device . . . ."") ('012 patent at 4:7-11) (emphasis added). Numerous claims, even those less abstract than claim 1, that raise such pre-emptions concerns have been held patent-ineligible for claiming an abstract idea. *See, e.g.*, *Bilski*, 561 U.S. at 611-612 (2010) (holding as an ineligible abstract idea claims directed to a method for hedging against the financial risk of price fluctuations, where the claims recited a

series of steps for hedging risk); *Alice*, 134 S.Ct. at 2359 (holding as an ineligible abstract idea claims directed to a method for mitigating settlement risk by using a computer as a third-party intermediary, where "each step does not more than require a generic computer to perform generic computer functions . . . [and] [t]he method claims do not, for example, purport to improve the functioning of the computer itself."); *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2013) (holding claims directed to patent-ineligible abstract idea and reasoning that "the [a]sserted [c]laims make no mention of employing a computer or any other physical device, [and] are so broad as to read on an individual performing the claimed steps mentally or with pencil and paper."); *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014) ("This ordered combination of steps recites an abstraction—an idea, having no particular concrete or tangible form."). In fact, claim 1 is worse off than claims previously held patent-ineligible because it fails to recite even a generic computer, for example.

Moreover, it is insufficient for purposes of patent-eligibility for claim 1 to simply recite three steps – *i.e.,* "determining a source orientation," "determining a display orientation," and "displaying the video images in positions" – that purport to claim the *function* of superimposing video images based on a relative orientation, without also *claiming* "*how*" to perform that function. *See Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1258 (Fed. Cir. 2016) (holding claims abstract where they "claim[ed] the function of wirelessly communicating regional broadcast content to an out-of-region recipient, not a particular *way of performing that function*.") (emphasis added). Claim 1 does not recite a specific algorithm. This is confirmed by the inventors' own admission in the specification that "[v]arious algorithms for [performing an image-related function] are well known in the art," though they fail to describe or incorporate any such algorithm let alone claim it. Dkt. 1-1 at 16 ('012 patent at 62-63). Even if the

specification arguably sheds any light on "how" any claimed function is performed, which it does not, as a matter of law the specification cannot save claim 1. *See Synopsys*, 839 F.3d at 1149 (citing *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013) ("the important inquiry for a § 101 analysis is to look to the claim."); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1346 (Fed. Cir. 2014) ("We focus here on whether the claims of the asserted patents fall within the excluded category of abstract ideas.")).

Claim 1 of the '103 patent is directed to the same ineligible subject matter as claim 1 of the '012 patent, though in the form of a *system* that performs the functions of claim 1 of the '012 patent. Dkt. 1-1 at 18, 37; *see supra* Sec. II.C.1. The mere fact, however, that claim 1 of the '103 patent is directed to a system rather than a method, does not save it from being abstract for the same foregoing reasons. *See CLS Bank Int'l v. Alice Corp. Pty. Ltd.*, 717 F.3d 1269, 1289 (Fed. Cir. 2013) (en banc) ("But applying a presumptively different approach to system claims generally would reward precisely the type of clever claim drafting that the Supreme Court has repeatedly instructed us to ignore. . . . Thus, when § 101 issues arise, the same analysis should apply regardless of claim format."), *aff'd* 134 S.Ct. 2347 (2014); *Mayo*, 132 S.Ct. at 1294 (2012) (reasoning that Supreme Court precedent "warn[s] us against interpreting patent statutes in ways that make patent eligibility 'depend simply on the draftsman's art' without reference to the 'principles underlying the prohibition against patents for [natural laws].'") (quoting *Parker v. Flook*, 437 U.S. 584, 593 (1978)).

In addition, although claim 1 of the '103 patent recites certain structural elements that are not recited in method claim 1 of the '012 patent—*i.e.*, "video camera," "first/second orientation sensor," "heads up display," and "computer"—the presence of these known, generic elements

cannot transform an otherwise abstract idea into patent-eligible subject matter. *See Affinity Labs of Texas,* 838 F.3d at 1258-59 (holding claims limited to "wireless delivery of regional broadcast content only to cellphones" were patent-ineligible because "merely limiting the field of use of the abstract idea to a particular technological environment does not render the claims any less abstract."); *Mortg. Grader, Inc. v. First Choice Loan Serv. Inc.*, 811 F.3d 1314, 1324-25 (Fed. Cir. 2016) (claims reciting an "interface," "network," and a "database" are nevertheless directed to an abstract idea); *Versata Dev. Grp., Inc. v. SAP America, Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015) ("The claims . . . merely use a computer to improve the performance of [price] determination—not the performance of a computer."); *Content Extraction,* 776 F.3d at 1347 (claims reciting a "scanner" are nonetheless directed to an abstract idea). Therefore, like claim 1 of the '012 patent, claim 1 of the '103 patent is also directed to an ineligible abstract idea.

Claims 2-16 and 18-19 of the '012 patent depend ultimately from claim 1. Dkt. 1-1 at 18-19. None of these seventeen dependent claims adds any meaningful element that transforms claim 1 of the '012 patent from an abstract idea into a patent-eligible invention. Specifically:

- claim 2 adds the video images are displayed in a heads up display (HUD);
- claim 3 adds the HUD is in a pair of night-vision goggles;
- claims 4 and 15 add the video source is attached to a weapon;
- claims 5, 7, 9, 11, 13, and 16 add the video source is a thermal gun sight (attached to a weapon);
- claim 6 adds the video source is a gun sight attached to a weapon and step (3) of the method includes displaying the video images in a HUD;
- claims 8 and 14 add a fourth step of cropping a portion of the video feed (from the weapon sight) such that less than its entirety is displayed;
- claims 10 and 12 add a fifth step of repositioning the displayed video images within the transparent display when the video source or transparent display moves;

- claim 18 adds that step (1) of the method includes determining the source orientation in a computer based on data received at the computer from a first orientation sensor configured to move with the video source, that step (2) of the method includes determining the display orientation in the computer based on data received at the computer from a second orientation sensor configured to move with the transparent display, and that step (3) of the method includes sending a video output from the computer; and,

- claim 19 adds that step (3) of the method includes displaying the video images in different positions on the transparent display as the video source is moved to point at locations corresponding to different locations within the visual field.

Dkt. 1-1 at 18-19. As evident, all of these elements are known, generic components (*e.g.*, displaying images in a HUD/night-vision goggles, or attaching the video source/thermal gun sight to a weapon) or token post-solution activity (*e.g.*, cropping/repositioning video, determining orientation using a sensor, or displaying video in a different position), none of which can render the abstract idea into eligible subject matter. *See Mayo*, 132 S.Ct. at 1297-98 (reasoning that the "*determining step* . . . tells doctors to engage in well-understood, routine, conventional activity previously engaged in[, and that] [p]urely 'conventional or obvious' '[pre/post]-solution' activity' is normally not sufficient to transform [] unpatentable [subject matter] into a patent-eligible application . . . .") (quoting *Flook*, 437 U.S. at 590; citing *Bilski v. Kappos*, 561 U.S. 593, 610 (2010) ("'[T]he prohibition against patenting abstract ideas 'cannot be circumvented by' . . . adding 'insignificant post-solution activity.'"")) (emphasis added); *Ultramercial*, 772 F.3d at 716; *Alice*, 134 S.Ct. at 2358 ("In holding that the process was patent ineligible, we rejected the argument that 'implement[ing] a principle in some specific fashion' will 'automatically fal[l] within the patentable subject matter of § 101.'") (quoting *Flook*, 437 U.S. at 593).

Similarly, claims 2-12 of the ’103 patent depend ultimately from claim 1. Dkt. 1-1 at 37. The elements in claims 2-11 are recited in at least one counterpart dependent claim in the ’012 patent, as follows:

’103 Patent	**’012 Patent**
Claim 2	Claim 3
Claim 3	Claims 5, 7
Claim 4	Claims 14-16
Claim 5	Claim 3
Claim 6	Claim 4
Claim 7	Claim 5
Claim 8	Claim 16
Claim 9	Claim 12
Claims 10-11	Claim 13

Dependent claim 12 of the ’103 patent merely adds “wherein the computer is a field computer adapted to be worn and carried by a human user.” Dkt. 1-1 at 37. Like the dependent claims in the ’012 patent, none of claims 2-12 of the ’103 patent add a meaningful element that could transform the ineligible abstract idea into a patent-eligible invention.[10] Accordingly, the first patent family claims are patent-ineligible as directed to an abstract idea.

B. The First Patent Family Claims are Devoid of Any “Inventive Concept”

The claims of the first patent family do not recite an “inventive concept.” A close analysis of what, if anything, the claim elements add to determine whether they identify an inventive concept finds merely conventional elements. *See supra* Sec. III.A (analyzing independent and dependent claims element-by-element); *Alice*, 134 S.Ct. at 2355 (after finding,

[10] Due to the similarity in subject matter between the dependent claims of the ’012 patent and the ’103 patent, an independent element-by-element ineligibility analysis of claims 2-12 of the ’103 patent would be superfluous.

at step one, that the claims are directed to an abstract idea "we then ask, '[w]hat else is there *in the claims* before us?'") (quoting *Mayo*, 132 S.Ct. at 1297) (emphasis added). The claimed conventional elements (*e.g.*, video source, a HUD/night-vision goggles/transparent display, thermal gun sight, weapon) or conventional steps (*e.g.*, cropping/repositioning video, determining orientation using a sensor, or displaying video in a different position) do not rise to the level of an "inventive concept." As claimed, none of these conventional elements or steps, alone or as an ordered combination, ensure that the patent in practice amounts to "significantly more than a patent upon the [ineligible concept] itself." *See Alice*, 134 S.Ct. at 2355 (quoting *Mayo*, 132 S.Ct. at 1294) (insertion in original) (emphasis added); *Affinity Labs*, 838 F.3d at 1258; *In re TLI Communications*, 823 F.3d at 614 ("[G]eneric computer components [are] insufficient to add an inventive concept to an otherwise abstract idea."); *Content Extraction*, 776 F.3d at 1349 (Fed. Cir. 2014) ("all of the additional limitations in the claims . . . recite well-known, routine, and conventional functions . . . . Thus, while these claims may have a narrower scope than the representative claims, no claim contains an 'inventive concept' that transforms the corresponding claim into a patent-eligible application . . . ."); *BuySAFE v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) ("That a computer receives and sends the information over a network—with no further specification—is not even arguably inventive.").

As described above, according to the inventors, the first patent family's *only* purported "improvement" is the "superimposition of video images" based on the relative orientations of the weapon sight's video source and night vision goggles, rather than "directly into the center of the night vision goggle's visual field." Dkt. 1-1 at 13-15 ('012 patent at 4:7-9, Abstract, 2:4-7); *see supra* Sec. II.C.1. However, this "improvement" is *claimed* as a high-level function and using conventional elements; it is not an "inventive concept." *See* Dkt. 1-1 at 18 ('012 patent, claim 1

recites, in part: "wherein boundaries of the displayed video images are in registration with boundaries of portions of the visual field represented by the displayed video images."); *Content Extraction*, 776 F.3d at 1348 ("There is no 'inventive concept' in [patentee's] use of a generic scanner and computer to perform well-understood, routine, and conventional activities commonly used in industry."). Furthermore, the inventors do not claim to be the first to have invented superimposing video images, and do not do so even in the context of head up display coupled to a weapon sight. *See* Dkt. 1-1 at 13-15. Indeed, the inventors admit using "well known," albeit unidentified and unclaimed, algorithms for their purported invention. *See* Dkt. 1-1 at 16 ('012 patent at 62-63); *Content Extraction*, 776 F.3d at 1348 ("attempt[ing] to limit the abstract idea . . . to a particular technological environment . . . has been held insufficient to save a claim in this context."). Accordingly, in the first patent family there is no claimed "inventive concept," nor is there any justifiable basis for finding such concept in such pre-emptive claims not tied to any specific machine or algorithm.

C. The Second Patent Family Claims the Abstract Idea of Superimposing a Video Image Based on Relative Motion Data

The claims of the '230 patent and '752 patent ("second patent family"), much like the claims of the first patent family, are drawn to the idea of superimposing a video image based on relative motion data. This idea, however, is also not patent-eligible because it is abstract. *See Alice*, 134 S.Ct. at 2355 (2014) ("The 'abstract ideas' category embodies the 'longstanding rule that '[a]n idea of itself is not patentable.'"') (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). SAIC's Complaint purports to describe an infringement allegation for claim 15 of the

'230 patent and claim 7 of the '752 patent[11]. Dkt. 1 at 25-34. Those claims are addressed in turn.

Claim 15 of the '230 patent is directed to a method that receives video images from a first and second video source, and receives motion data indicative of motion of those video sources. Dkt. 1-1 at 90. After several steps, the method recites "displaying at least a portion of the first video source image and at least a portion of the second video source image such that a second video source image portion *overlays a corresponding region of the first video source image portion*." *Id.* (emphasis added). "[T]he corresponding region represents a portion of the external environment represented in the second video source portion." *Id.* This subject matter is like superimposition of a video image claimed in the first patent family. *See supra* Secs. II.C.1, III.A. The method recites five steps, as follows.

- Step One: "receiving video images from a first video source and from a second video source representing portions of an external environment." Dkt. 1-1 at 90.

According to the specification, data is received "for a video frame (i.e., a scope image) from [a] scope" and for "a goggles image from [an] image generator." Dkt. 1-1 at 81 ('230 patent at 8:23-26); *see supra* Sec. II.C.2. Step 1, as claimed however, fails to recite both "a scope" and "an image generator."

[11] Claims 1, 15, and 29 of the '230 patent are the only independent claims in that patent. Claims 1, 7, and 13 of the '752 patent are the only independent claims in that patent. For purposes of a patent-ineligibility analysis, claim 15 of the '230 patent is representative of claims 1 and 29 of that patent, and claim 7 of the '752 patent is representative of claims 1 and 13 of the '752 patent. To the extent SAIC argues that claim 15 of the '230 patent or claim 7 of the '752 patent are not representative of the other independent claims in each respective patent, SAIC's Complaint must be dismissed under Rule 12(b)(6) for failure to meet the basic pleading standards of RCFC 8(a)(2) in view of *Twombly/Iqbal*. SAIC's Complaint does not purport to describe an infringement allegation for claims 1 and 29 of the '230 patent and claims 1 and 13 of the '752 patent. *See Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009) (quoting *Bell Atlantic Corp. v. Twombly*, 550 U.S. 544 (2007)); *see also supra* n.1.

- Step Two: "receiving motion data indicative of motion of the first and second video sources." Dkt. 1-1 at 90.

According to the specification, angular pitch, roll, and yaw orientation data is received from sensors for the goggles and for the scope. Dkt. 1-1 at 90 ('230 patent at 8:26-30); *see supra* Sec. II.C.2. Step two, as claimed however, fails to identify the sensors or the foregoing motion data.

- Step Three: "identifying, based on the received motion data, a part of a first video source image that potentially represents a portion of the external environment represented in a part of a second video source image." Dkt. 1-1 at 90.
- Step Four: "evaluating, based on a comparison of data from the first and second video source images, the identification performed in step (c)." *Id.*
- Step Five: "displaying at least a portion of the first video source image and at least a portion of the second video source image such that the second video source image portion overlays a corresponding region of the first video source image portion, wherein the corresponding region represents a portion of the external environment represented in the second video source portion." *Id.*

According to the specification, "the scope image is cropped, resized, and/or rotated[,]" and "[t]he resulting image is then overlaid on the goggles image as the weapon view . . . ." Dkt. 1-1 at 15 ('230 patent at 15:22-25); *see supra* Sec. II.C.2.

Notwithstanding the recitation of generic first and second "video source[s]," claim 15 of the '230 patent recites no element that is arguably structural. Dkt. 1-1 at 90. The claimed method also fails to recite a specific algorithm, nor is the method tied to a specific machine/computer. *Id.* Claim 15 of the '230 patent is abstract on its face. *See Alice*, 134 S.Ct. at 2360 (quoting *Mayo*, 132 S.Ct. at 1298) (emphasis in original). In essence, like claim 1 of the

first patent family, claim 15 of the '230 patent amounts to a patent monopoly on an age-old practice capable of being performed in the human mind. *See supra* Sec. III.A; *see, e.g., Bilski v. Kappos*, 561 U.S. 593, 602 (2010); *Synopsys*, 839 F.3d at 1146-47 (citing *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016)). The *specification* of the '230 patent states that the purported invention minimizes the need for manually-initiated recalibration of sensors ('230 patent at 1:44-45), which apparently experience bias drift over time ('230 patent at 1:38-41), to solve a problem in the prior art with "[d]etermining the relative orientations of two video sources based on inertial measurement unit (IMU) sensor data" ('230 patent at 1:35-38). However, claim 15 on its face recites no calibration/recalibration. Dkt. 1-1 at 90. Indeed, claim 15 suffers from the same broad pre-emption concerns as the first patent family, and is far removed from the inventors' purported improvement over the prior art. *See, e.g., Bilski*, 561 U.S. at 611-612 (2010); *Alice*, 134 S.Ct. at 2359; *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2013) (holding claims directed to patent-ineligible abstract idea and reasoning that "the [a]sserted [c]laims make no mention of employing a computer or any other physical device, [and] are so broad as to read on an individual performing the claimed steps mentally or with pencil and paper."); *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014).

Moreover, it is insufficient for purposes of patent-eligibility for claim 15 to simply recite five steps – *i.e.*, "receiving video images," "receiving motion data," "identifying, based on the received motion data," "evaluating, based on a comparison of data," and "displaying. . . such that the second video source image portion overlays a corresponding region of the first video source image portion" – that purport to claim the *function* of superimposing video images based on relative "motion data," without also *claiming* "*how*" to perform that function. *See Affinity Labs*

of Texas, LLC v. DIRECTV, LLC, 838 F.3d 1253, 1258 (Fed. Cir. 2016). Claim 15 does not claim a specific algorithm. The inventors confirm as much in, for example, their declaration that "an alternate image comparison algorithm is used instead of (or in addition to)" certain "operation[s] of the system." Dkt. 1-1 at 78, 86 ('230 patent at 18:64-66; Figs. 5A-B, 7 (flowchart providing additional details for a block in the flow chart of Figs. 5A-B)). And, regardless of what might be *described* in the specification, as a matter of law the specification cannot save claim 15 from *claiming* an abstract idea. *See Synopsys*, 839 F.3d at 1149 (citing *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013) ("the important inquiry for a § 101 analysis is to look to the claim."); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1346 (Fed. Cir. 2014) ("We focus here on whether the claims of the asserted patents fall within the excluded category of abstract ideas.")).

The dependent claims suffer from the same infirmities. Claims 16-28 of the '230 patent depend ultimately from claim 15. Dkt. 1-1 at 90-91. None of these thirteen dependent claims adds any meaningful element that transforms claim 15 of the '230 patent from an abstract idea into a patent-eligible invention. Specifically:

- claim 16 adds that step (b) includes receiving data from IMU sensors coupled to and movable with the video sources;
- claim 17 adds that step (c) includes using the received motion data to determine an amount by which the second video source image portion should be rotated relative to the first video source image portion . . .; and adds that step (d) includes determining, . . . , a rotation of the second video source image region relative to the first video source image;
- claim 18 adds that step (d) includes calculating a rotationally invariant similarity metric for at least one region of the second video source image relative to at least one region of the first video source image;
- claim 19 adds that step (c) includes identifying a high-contrast region (containing a reference point) of one of the images and identifying (based on the received

motion data) a corresponding reference point in the other of the images; and adds that step (d) includes identifying elements of the other images relative to the corresponding reference point and comparing image data associated with elements of the high-contrast region with image data associated with the identified elements;

- claim 20 adds that step (d) includes obtaining a first set of gray-scale values (associated with the high-contrast region elements) and a second set of gray-scale values (associated with the identified elements), and performing Fast Fourier Transforms (FFT) on the first and second sets;

- claim 21 adds that the elements of the high-contrast region are positioned in a dimensioned arrangement relative to the reference point and the elements of the other of the images are in the dimensioned arrangement relative in the corresponding reference point;

- claim 22 adds that step (d) includes obtaining a first set of gray-scale values associated with the high-contrast region elements and obtaining a second set of gray-scale values associated with the identified elements, and performing one or more Fast Fourier Transforms (FFT) on the sets;

- claim 23 adds that step (d) includes (d1) selecting a first/second location in the first/second video source image, respectively, (d2) calculating a peak to sidelobe ratio (PSR) using regions of the images surrounding the locations, and (d3) assessing, using the PSR of step (d2), whether the locations represent the same portion of the external environment;

- claim 24 adds (f) determining, using the PSR of step (d2), that the first and second locations do not represent the same portion of the external environment, (g) selecting additional locations in the first video source image; (h) calculating PSRs using the region of the second video source image surrounding the second location and regions of the first video source image surrounding the additional locations; and (i) determining, using a PSR associated with an identified one of the additional locations, that the identified and second locations represent the same portion of the external environment;

- claim 25 adds adjusting, based on the evaluation of step (d), the manner in which the identification of step (c) is performed;

- claim 26 adds that the second video source is mounted on a weapon, wherein the first video source and a display are contained in a pair of goggles wearable by a user, and further including (f) determining a position of the system in the external environment; (g) determining an orientation of the goggles in the external environment; (h) identifying objects in the external environment based on the position and orientation determined in steps (f) and (g); and (i) generating graphic indicia on the display providing information about objects identified in step (h);

- claim 27 adds that the graphic indicia are generated on the display in positions associated with the first video source image representations of the external objects about which the indicia provide information; and,

- claim 28 adds that the graphic indicia include icons, and wherein the sizes of the icons are scaled based on distances between the system and the external objects about which the icons provide information.

Dkt. 1-1 at 90-91. Although these dependent claims are presumably narrower in scope than claim 15 by virtue of their additional elements, they are nonetheless directed to well-known mathematical calculations—*e.g.*, a Fast Fourier Transform (FFT) or peak to sidelobe ratio (PSR)—that can be performed by pencil and paper or in the human mind, and are therefore patent-ineligible. *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146 ("we continue to 'treat[] analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.'") (Fed. Cir. 2016) (quoting *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371 (Fed. Cir. 2011) (mental processes unpatentable). Additionally, claiming known, generic components (*e.g.*, "inertial measurement unit (IMU) sensors") or token post-solution activity (*e.g.*, receiving data from IMU sensors, determining rotation, calculating a metric for an image relative to another image, generating graphic indica (including icons), etc.) does not somehow make an abstract idea patent-eligible. *See Mayo*, 132 S.Ct. at 1297-98 (quoting *Flook*, 437 U.S. at 590; citing *Bilski v. Kappos*, 561 U.S. 593, 610 (2010) ("'[T]he prohibition against patenting abstract ideas 'cannot be circumvented by' . . . adding 'insignificant post-solution activity.'"")); *Ultramercial*, 772 F.3d at 716; *Alice*, 134 S.Ct. at 2358 ("In holding that the process was patent ineligible, we rejected the argument that 'implement[ing] a principle in some specific fashion' will 'automatically fal[l] within the patentable subject matter of § 101.'") (quoting *Flook*, 437 U.S. at 593).

Claim 7 of the '752 patent is directed to the same ineligible subject matter as claim 15 of the '230 patent. Dkt. 1-1 at 145; *see supra* Sec. II.C.2 (color-coded claim elements side-by-side). Therefore, like claim 15 of the '230 patent, claim 7 of the '752 patent is also directed to an abstract idea. Claims 8-12 of the '752 patent depend ultimately from claim 7. Dkt. 1-1 at 145-146. Much like the dependent claims in the '230 patent, claims 8-12 of the '752 do not introduce any structural element, but merely recite steps that amount to calculations. *Id.* None of claims 8-12 of the '752 patent adds a meaningful element that could transform the ineligible abstract idea into a patent-eligible invention.[12] Accordingly, the second patent family claims are patent-ineligible as directed to an abstract idea.

D. The Second Patent Family Claims are Devoid of Any "Inventive Concept"

The claims of the second family do not recite an "inventive concept." A close analysis of what, if anything, the claim elements add to determine whether they identify an inventive concept finds merely conventional elements. *See supra* Sec. III.C; *Alice*, 134 S.Ct. at 2355 (after finding, at step one, that the claims are directed to an abstract idea "we then ask, '[w]hat else is there *in the claims* before us?'") (quoting *Mayo*, 132 S.Ct. at 1297) (emphasis added). The claimed conventional elements (*e.g.*, "video source"[13], IMU sensors[14]) or conventional steps[15] do

[12] Due to the similarity in subject matter between the dependent claims of the '230 patent and the '752 patent, an independent element-by-element ineligibility analysis of claims 8-12 of the '752 patent would be superfluous.

[13] Claim 15, '230 patent and claim 7, '752 patent.

[14] *See* Claim 16, '230 patent. Dkt. 1-1 at 90.

[15] *See* Claim 15, '230 patent ("receiving video images," "receiving motion data," "identifying, based on the received motion data," "evaluating, based on a comparison of data," and "displaying. . . such that the second video source image portion overlays a corresponding region of the first video source image portion"), Dkt. 1-1 at 90; *see also* Claim 7, '752 patent ("receiving first[/second] video data of images," "receiving first[/second] motion data," "identifying, . . ., a region of a first image generable from the first video data for comparison with a region of a second image generable from the second video data," "comparing data

not rise to the level of an "inventive concept." As claimed, none of these conventional elements or steps, alone or as an ordered combination, ensure that the patent in practice amounts to "significantly more than a patent upon the [ineligible concept] itself." *See Alice*, 134 S.Ct. at 2355 (quoting *Mayo*, 132 S.Ct. at 1294) (insertion in original) (emphasis added); *Affinity Labs*, 838 F.3d at 1258; *In re TLI Communications*, 823 F.3d at 614 ("[G]eneric computer components [are] insufficient to add an inventive concept to an otherwise abstract idea."); *Content Extraction,* 776 F.3d at 1349 (Fed. Cir. 2014) ("all of the additional limitations in the claims . . . recite well-known, routine, and conventional functions . . . . Thus, while these claims may have a narrower scope than the representative claims, no claim contains an 'inventive concept' that transforms the corresponding claim into a patent-eligible application . . . ."); *BuySAFE v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014).

As described above, according to the inventors, the second patent family's *only* purported "improvement" to the conventional art is minimizing the need for manually-initiated recalibration of sensors that experience bias drift over time. Dkt. 1-1 at 78 ('230 patent at 1:38 – 2:16); *see supra* Sec. II.C.2. However, this "improvement" does not appear anywhere in claim 15 of the '230 patent or claim 7 of the '752 patent. Dkt. 1-1 at 90, 145. The first mention of any "calibration" is in dependent claim 8 of the '752 patent, which depends from independent claim 7. Dkt. 1-1 at 145 ("updating, based on the comparing, calibration data used to identify the region of the first image based on the received first motion data and the received second motion data"). None of the other claims that depend from claim 7 of the '752 patent mention any

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corresponding to the identified region of the first[/second] image," "selecting, based on the comparing, a part of the first[/second] image that represent a same portion of the external environment," "displaying at least a portion of the first image and the selected part of the second image such that the selected part of the second image replaces the selected part of the first image and is in registration with the regions of the first image surrounding the selected part of the first image."), Dkt. 1-1 at 145.

"calibration," and neither do any of dependent claims 16-28 of the '230 patent. Dkt. 1-1 at 145-146 ('752 patent), 90-91 ('230 patent). The mere mention of "calibration data," in claim 8 of the '752 patent, does not rise to claiming an inventive concept because it is done using high-level functional language and conventional data manipulation (*i.e.*, "*updating* . . . calibration *data*"), and without specifying any details as to "how." *See* Dkt. 1-1 at 145; *Content Extraction*, 776 F.3d at 1348 ("There is no 'inventive concept' in [patentee's] use of a generic scanner and computer to perform well-understood, routine, and conventional activities commonly used in industry."). Accordingly, in the second patent family there is no claimed "inventive concept," nor are the claims even tied to the inventors' *only* purported improvement over the prior art.

IV. CONCLUSION

For the reasons stated above, this civil action should be dismissed with prejudice under Rule 12(b)(6).

Respectfully submitted,

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